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ORIGINAL ARTICLES.

A FURTHER REPORT UPON "A USEFUL MILD CAUSTIC"; ITS EMPLOYMENT IN CANCER AND AFFECTIONS OF THE CORNEA.*

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In an article entitled "A Useful Mild Caustic; A Relief, Possibly a Cure for some Forms of Cancer," read before the Ophthalmic Section of the St. Louis Medical Society and published in the *Americal Journal of Ophthalmology* for November, 1909, I mentioned a variety of instances in which a solution of ten grains of resorcin and one hundred and twenty grains of salicylic acid to the ounce in alcohol had been used for cauterizing purposes with excellent results, and among them were three cases of malignant epithelioma. Since then opportunity has arisen for several other trials which materially add to the data therein mentioned.

Before passing to them it may be well to state that these experiences and those that have preceded demonstrate that the value of the solution consists in its ability to destroy not only the malignant or infected cells but also the avenues of the food supply to the cells, and this too without exciting harmful reaction in the adjoining tissues. Particularly is this so in the case of cancer, on the cells and vascular frame of which it seems to have a selective action without injuring to any extent the healthy granulation tissue that replaces the neoplasm. Besides this it controls wholly, or to a very great degree, the well recognized "cancer odor."

*Read before the St. Louis Ophthalmological Society, May 9, 1910.

The first of the cases now to be mentioned is a malignant rodent epithelioma of the upper lip and ala of the nose with a history of twelve years growth, during all of which time it has been in the care of our most scientific dermatologists, and has received every form of treatment except actual excision, excessive destructive caustics, fulguration, or the actual cautery. It began as a small wart-like growth on the right side of the upper lip. In the long course of the existence of the growth this region has become occupied by a scar, which draws the right portion of the lip upward so that the teeth are somewhat exposed. During the past year it has been in the care of Doctor F. C. Simon, under whose excellent management with a "Multum in Parvo" light and a six per cent. bismuth subnitrate in vaseline ointment, a large spongy mass to the left side has decreased in size and the whole ulcer has softened at the margins and has taken on a more healthy appearance. At my request Dr. Simon kindly gave me the opportunity to make a trial with this solution in order to demonstrate how it would act elsewhere than on eyelids and orbits.

At the time of the first application the growth consisted of four separate pearls, one on the right side of the nose, one above the angle of the mouth on the right side, one just to the outer angle of the mouth on the right side, and one to the left side of the upper lip and extending along the lip a little above the mucous margin. It was with this latter that the spongy mass, now almost worn away to the level of the surrounding tissues under the influence of the light, had existed. All ranged in size from 8 mm. to 5x12 mm. in diameter.

With the first application to the pearl on the nose a small vessel with its numerous branches which came over the margin of the ala and spread out on the surface of the ulcer was turned black; in the second pearl vessels came from the cheek, in the third a vessel coursed along the bottom of the ulcer from the angle upward, in the fourth a large vessel extended from the outer portion of the ulcer and branched along rather deeply under its surface. These vessels were destroyed by the first and second applications made two days apart, and their death was followed by the rapid disappearance of the purulent discharge which heretofore had been so abundant that it was necessary to wear a plaster continually and to change this several times daily. Now sufficient protection was formed by using the bismuth ointment and covering this with talcum powder. This treatment was begun ten weeks ago and has been continued every

third to fifth day over the places where ulceration has persisted. In the meantime the weaker solution containing five grains of salicylic acid to the ounce is applied once or twice daily to the original dressing of ointment and talcum, thus keeping the otherwise undisturbed scab thoroughly sterilized. Healing has progressed steadily and favorably. The upper three ulcers are practically well, the one at the angle of the mouth persists but is filled with apparently healthy granulations. The patient is in her eightieth year.

In order to determine what effect this dressing would have on the "cancer odor", Dr. Carson kindly placed at my disposal four weeks ago, at the Skin and Cancer Hospital, two hopelessly infected patients. The one was a woman seventy years of age, with an enormous suppurating cancer, which involved a large portion of the frontal and parietal regions and in which the skull was bare and dry over a space of about eight square centimeters. The cancerous mass, two centimeters or more in thickness bordering this bared surface and extending over the left eye and filling the orbit, had been injected with formaldehyde, causing extensive necrosis in the tissue. From places where there were new granulations there was also free bleeding with each disturbance of the dressings.

To the whole ulcerating surface and over the necrotic exposed bone daily applications were made freely and teased into the tissues till they became brown. This was followed by a twelve per cent. bismuth subnitrate vaseline ointment, and over this was sprinkled thickly a dry sterilized talcum powder (U. S. P. purified, Mallinckrodt,) to each four ounces of which had been added eighty grains of sodium biborate, forty grains of resorcin, four drops of oil of bergamot and eight drops of oil of lemon. After the second dressing the odor was no greater than in any ordinary ulcer where sequestrating bone was present. Also the bleeding ceased and the whole surface assumed a more healthful appearance.

The same may be said of the second case, in which the left breast and probably the glands of the axilla had been removed seven months previous to the time when the patient, a negress, thirty-four years of age, entered the hospital. At the time of entrance the whole breast and axillary region around to the scapula was a mass of offensive fungoid cancerous tissue, which was subjected to fulguration, with the result that when it came into my hands several weeks later, there were large quantities of necrotic tissue being separated from the newly forming granulation tissue.

At no time until her death, four weeks later, was there any tendency to spreading or increase in the size of the original ulcer. The cancerous odor was also materially lessened.

On the right breast of this same patient, which was a solid cancer with the epithelium unbroken, the attempt was made to see whether the absorption of the drugs through the epithelium, or through any abrasion that might be made in it, would control or lessen the tension. For this purpose the skin was burned through by means of the solution and a strong salicylic acid paste. In the course of a week a large non-suppurating ulcer six centimeters in diameter was produced about the nipple without any influence upon the hardened breast. Also this treatment caused considerable steady pain, much more than was produced by the far more extensive ulcer on the left side, doubtless due to the injury to the sensitive dermal nerve endings. As to the pain in general, which was always present, it was greatly relieved except at the moment of the sting of the application, so much relieved within ten minutes after the application that the patient would sit up in a chair and say she was entirely comfortable for two or three hours. It also controlled an ever present cough to a considerable degree. Before using the solution a one per cent. cocaine solution was applied to the surface of the ulcer; this somewhat modifies the sting of the alcohol.

The following hospital and autopsy reports kindly furnished me by Dr. R. C. Findlay show how desperate these two cases were.

January 20, 1910.—M. A., aged 70, enters with round lesion 3 inches across on forehead, ulcerated in center, giving "coral island" shape; three-fourths of an inch high, very foul. Clinical diagnosis. Epithelioma of forehead. Metastases in parotid region. Cleaned up and bichloride pack.

January 24 to February 28.—Acetone or acetone bisulphite off and on.

February 28.—Injected with varying strengths formaldehyde (5% to 20%), causing much sloughing in a few days.

April 4.—Resorcin salicylic acid alcohol solution.

April 17.—Died. P.M. Metastases in both lungs. Fluid in each pleural cavity. Pericardial effusion. Nephritis. Death from edema of the lungs.

February 24, 1910.—M. S. entered with left breast gone and at its site an ulcerated scar. Very foul. Clinical diagnosis. Recurrent carcinoma, breast.

February 28.—Curetted and fulgurated.

March 28.—Fulgurated. Acetone or acetone bisulphite off and on.

April 5.—Resorcin salicylic acid alcohol solution.

May 6.—Died. P.M. Metastases both lungs, liver and suprarenal body. Left lung collapsed. Clear fluid in left pleural cavity. Bloody fluid in right pleural cavity. Nephritis. Pneumonia.

A fourth case, now being treated, is a malignant epithelioma of the hard palate, the buccal mucous membrane on either side, and extending into the floor of the anterior nases, closing each nostril with cauliflower-like growths, each containing a crater, the right protruding to the nasal orifice and the left beyond it. After the sloughing from the first application the patient could breathe through the right nostril, and after later ones, quite freely, and a little through the left. Also the condition in the mouth and

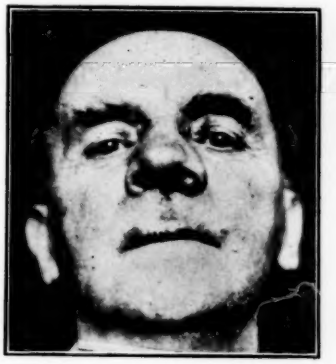

FIG. 1.

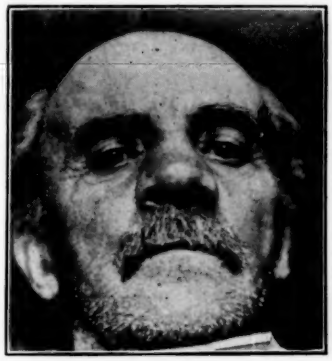

FIG. 2.

palate improved, the applications having been made every second or third day. For a week they were discontinued and immediately the growths in the nose began to increase. With a hypodermic syringe the solution was injected into the base of the large one on the left side by three punctures. A few minutes later the patient remarked that the injected region felt numb. The following day there was not as much reaction from this procedure as would result from an ordinary hypodermic injection of morphine, although half of the growth was blue black. Two days later the bluish mass dropped away leaving a clean base free from granulations.*

*Since the reading of this article three other injections have been made into these growths, causing them to slough without injury to the adjoining tissues. The accompanying half-tone Fig. 1 shows the tumor on the left side; the photograph was taken previous to the development of the tumor in the right meatus. The half-tone, Fig. 2, shows the result after the use of the solution by injection.

In the previous article I mentioned several instances of the use of this solution on the cornea. Since then three opportunities have presented themselves for trying it further in hypopyon keratitis, all of them ulcers involving more than half of the corneal area, and all of them eventually perforating. In two of them a very good cornea was saved and the third is well on the way to recovery.

My latest venture with it, undertaken at the suggestion of my assistant, Dr. J. B. McCubbin, who had used it in a similar case, was to attack an old, thickened, tough, corneal staphyloma which protruded between the lids. For three successive days incisions were made with a sickle needle entirely across it to the depth of the corneal curvature with very little reduction in its size. I then resorted to this solution, using it daily for three days. On the fifth day the staphyloma was entirely destroyed, leaving a fairly good cornea of nearly normal curvature, and this with no perceptible conjunctival reaction. Probably a small fistula exists somewhere in the destroyed area or there is a good filtrating scar. The globe is quiet, tension about normal and the patient is comfortable.

For the exact proportions of the caustic and also of the weaker solution used for keeping the scab sterile and for the mode of their employment, the previous article may be quoted.

"The weaker or cleansing solution used in the first case has long been employed by me for seborrhea, acne, toothache, insect bites, shaving, fresh wounds and ulcers. Its proportions are:

Resorcin	gr. xl	: grmm.	2.60
Salicylic acid	gr. xx	:	1.20
Carbolic acid	gtt. j	:	.06
Oil Lavender	gtt. j	:	.06
Oil Bergamot	gtt. iv	:	.26
Alcohol 95%	℥ iv	:	124.40

For cauterizing purposes this solution should be saturated with salicylic acid, which means the addition of one hundred and twenty grains, or 8.00 grammes of the salicylic acid to each ounce.

The drugs are well known, and all of them are used in various ways in connection with general medicine, with the exception, perhaps, of the oil of bergamot, which seems to have a place only in perfumery, and yet when it is dropped upon the tongue its anæsthetic action is quite as marked as that of the other essential oils. The anæsthesia produced by the solution is doubtless due

to these oils in combination with the alcohol, the resorcin and the carbolic acid. Where it may be employed in place of the actual cautery, or the more powerful caustics, its advantage is in this anæsthetic power, together with its safety, and its slight tendency to excite acute inflammatory reaction. Upon the cornea and conjunctiva it should be used carefully so as to not injure healthy tissue. Upon epithelial growths it will have little effect where there is much thickening of the epithelial mass, unless it is teased into the growth until the capillaries become brown or black, and this should be repeated daily or every second day until all the epithelial tissue is destroyed, and the floor and margins of the ulcer are covered with normal, healthy granulation tissue.

When either the weaker or the stronger solution is applied to an abraded or a sensitive surface there is a sharp momentary sting, followed by a little pain, unless cocaine or some local anæsthetic has been previously used. This pain quickly subsides. Either of the solutions may then be immediately and frequently re-applied with little or no suffering to the patient. The stronger or caustic solution first causes abraded, ulcerated or mucous surfaces to turn white. If this whitened surface is teased, preferably with the weaker solution applied on a pledget of cotton and alternated occasionally with the stronger solution, the teased region will presently change from white to brown or black, when red blood is present, usually very readily in adventitious tissue, less readily in normal tissue. When used upon the cornea the immediate and subsequent action of the stronger solution closely resembles that of the actual cautery."

RING-ULCER OF THE CORNEA FOLLOWED BY AN APPARENT INCIPIENT ECTASIS OF THE CENTRAL PORTION.

By J. W. Charles, M.D.,
ST. LOUIS, MO.

The relation of ectasia of the cornea to a preceding inflammation or degeneration at the limbus seems to be illustrated by the following case:

On January 26th, 1901, Mrs. F. R., 49 years old, was first seen having been suffering from grippe for 11 days.

Six days before her visit to my office the right eye began to feel as if something foreign were in it. Examination showed a ring ulcer on the nasal portion of the right cornea, spreading in the peculiar manner shown in the diagram (Fig. 1).

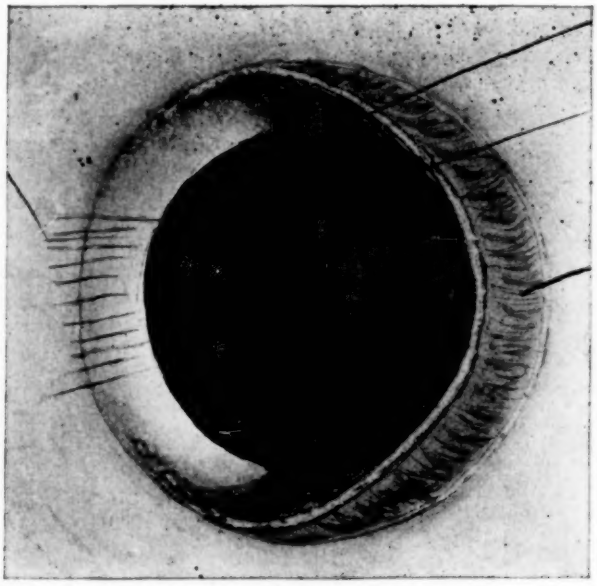
Leash of vessels from temporal side.
Rugged furrow with undermined sides.
Cloudy portion of Cornea in advance of ulcer.
Depressed area between limbus and furrow.

FIG. 1.

O.D. V=15/150.

O.S. V=15/15.

The ulcer was wiped clean with bichloride 1-5000 and touched with Lugol's solution, which was followed by argent nitrat. gr. xx-$\bar{3}$j. on an applicator. Atropia with cocaine in oil was used and the oxychloride of mercury ointment gr. i-$\bar{3}$ ii. rubbed in thoroughly.

℞. Protargol one per cent. every three hours followed by oil of atropia and cocaine.

℞. Quinine gr.iii t.i.d. and calomel gr.1/10 t.i.d.

Unfortunately, no bacteriologic report of the case at that time was recorded.

The above outlined treatment was continued for five days, the progress of the ulcer was checked and the patient disappeared after a few weeks before an accurate examination of the refraction could be made. The interesting features of this case were that the patient was very much below par physically, the discreet infiltrations in advance of the main furrow had extended around 4/5 of the corneal periphery; centrally from the position of the furrow the cornea was cloudy over 1/2 of the fairly dilated pupil so that I felt that the case was almost hopeless; and then, when blood vessels began to enter, they came from the temporal side instead of following the lesion in the trough of which most stimulating applications were being made on the nasal limbus. (The entire area from the nasal limbus to the furrow was wiped out daily and repeatedly with bichloride 1-5000, Lugol's solution and finally nitrate of silver 1/24.)

On January 17th, 1905, the patient returned with a ring infiltration on the nasal quadrant of the left cornea 4 mm. long, at least 1/2 mm. distant from the limbus, with one separate focus advancing from either end above and below. In three days the infiltration had progressed until it occupied 2/5 of the corneal periphery, but the surface of the cornea remained intact until January 21st, when Dr. F. Fahlen made cultures from the ulcer on blood-serum. Neither his smears nor the culture media showed any bacteria. His second report, January 27th, was "staphylococcus pyogenes albus in pure culture."

O.D. with +0.75 cyl. ax. vertl. V=15/15.

O.S. with +0.75 cyl. ax. vertl. V=15/38. The patient's answers were too indefinite for accuracy. The pains were most severe in the afternoon.

February 2nd.—The trough has been closing for five days. I have been applying Lugol's solution and carbolic acid in the proportion of 1 to 3 with an applicator. There is a new focus at the upper inner end of the healing ulcer. This was burned with the actual cautery. On the next day the ulcer looked clean and the irritation was much less. Bichloride 1-5000, Lugol, atropia and cocaine in oil, argyrol twice and bandage were used. On the next day the central edge toward the pupil was again infiltrated and was cauterized with the actual cautery. On the 11th the ulcer was healing rapidly with very little congestion remaining.

March 18th.—Ophthalmometer gives O.D. As 2.5. M. 85° slightly irregular. O.S. As 2.5 M. vertl.

Trial gives O.D. Ah 2.5. M. 85° 2. V=15/15+. O.S. Ah 2.5 M_0 vertl. M 1. V=15/15+.

Dec. 9th, 1906.—Patient comes with a bead-like infiltration in the outer quadrant of O.D. in the formerly clear fifth of the cornea.

10th.—One new infiltration at the edge of that seen yesterday. Ag. 1/240, atrop. and cocaine in oil, dionin. These were probably simple phlyctænules, but my record does not show this fact.

The patient was not seen again until April 27th, 1909, when she had groups of marginal phlyctænules at the inner lower limbus of three days' duration in the left eye and one day old in the right. Recovery was prompt.

O.D. with —2. cyl. ax. 175° V=19/15+.

O.D. with —2.5 cyl. ax. horl. V=19/15.

The right corneal periphery was still slightly opaque and depressed while the pupillary area was prominent as if a glass bead had been deeply imbedded in the corneal tissue. The change in refraction seemed significant since no lens changes were noticed. There was no trace of the former vascularity in the now perfectly clear central portion of O.D.

About one year ago Dr. John Green, Jr., called my attention to a case in his practice of ectatic clear cornea (not keratoconus), and we agreed that from some unknown cause, a degeneration at the limbus causing a uniform weakening of the resistance of the cornea to the normal tension of the globe was the most probable source of this unusual affection. (Dr. Green now tells me that his case has recently had to have this eye enucleated on account of a blow which caused a rupture through the scarred limbus and that he is waiting for the pathological report before publishing the case.)

My case seems to confirm that hypothesis as far as we have been able to follow it.

The absence of blood-vessels on the nasal side of the lesion seems to indicate an involvement of the corneal nervous system of that side, since the impulse of the surrounding vessels to enter the cornea is dependent upon intactness of the nerve supply and its ability to preserve the reflex between the injured tissue and the vessel itself. While a separate "trophic" nervous system has not as yet been definitely proven, the influence of the nerve supply of the cornea upon its nutrition cannot be doubted.

AN EXAMPLE OF LEBER'S DISEASE.

By J. C. Clemesha, M.D.,
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Attending Surgeon at the Buffalo Eye and Ear Infirmary.

This lesion, manifesting itself in rather early life as an optic neuritis, results in atrophy more or less complete. Several members of the same family are usually affected.

Leber based his first description upon 15 cases of his own occurring in 4 families (*Archiv für Ophthalmologie*, Vol. XVII) and upon 3 reported by Von Graefe in a single family. In a later paper, in 1877, Leber adds other cases amounting in all to 55 individuals in 16 families.

According to Leber, the disease commences usually a few years after puberty between the 18th and 23rd year, though it has been observed as early as 5 years and up to the age of 43. Frequently the only trace of a congenital predisposition is that it occurs in several brothers and sisters. Sometimes, however, it is the uncles and aunts of the patient or cousins of two or more branches of the family who are affected. In no case was the father attacked and the mother had suffered in only two of the cases.

The disease appears almost exclusively in the male members of the family, though it is frequently transmitted through the female line.

The onset is usually sudden and consists of a progressive diminution of vision, becoming more marked in a few days or weeks until the patient is no longer able to decipher even large print. For the next few weeks a more gradual deterioration follows. There are seldom any acute symptoms, though in some cases headache is complained of.

The loss of vision is for the most part a central amblyopia usually in the form of a more or less complete central scotoma. Color sensation is always abolished or much diminished.

Ophthalmoscopic appearances exhibit but slight changes at the beginning. Usually there is some haziness of the margin and hyperæmia of the discs. Later, a pallor of the discs shows itself especially in the outer half. The disturbance of vision corresponds with the alterations in the nerve and the disease then comes to a standstill. Occasionally the sight may improve a trifle.

Following Leber many cases were noted and reported in Germany, France, England and America, some of them most interesting, showing the hereditary nature of the disease.

In the Trans. of the Oph. Soc. of the United Kingdom, Vol. XVII, 1897, Simeon Snell gives the history of 5 families, and is the first to attempt to differentiate this disease. He divides his cases into 3 groups.

Group I consisted of a family in which the amblyopia was congenital. No alteration in the state of the vision had at any time been recognized.

Group II corresponds to the class described by Leber as hereditary optic atrophy, but in some there was peripheral contraction of the visual fields.

Group III included persons who were also smokers and in whom it was impossible to differentiate Leber's disease from ordinary tobacco amblyopia.

The family I wish to record comes under Group I of Snell's classification.

The first member of the family to be seen was brought to the Buffalo Eye and Ear Infirmary. C. D., aged 6, now at the Batavia Blind Asylum, was seen five and a half years ago at the Infirmary. The mother suspected that the baby was blind and wished an examination made. Atropine was instilled and a few drops of chloroform were given to inhale to permit a careful examination. The ophthalmoscope showed typical optic atrophy. Discs white, arteries small and media clear.

Five years later the mother brought another son, Albert D., aged 5 months, for a similar examination which showed the same condition. This coincidence caused inquiries to be made and it was discovered that another son, Frank, aged 12 years, was affected to a lesser degree. Vision in each eye 20/200 slightly improved with glasses. His mental condition was somewhat defective. He did not know all the letters of the alphabet, though he had attended school for some years. Memory very imperfect, but good-natured and contented.

Ophthalmoscopic examination showed clear media. Optic disc somewhat pale with small arteries and veins. Some diminution of the peripheral fields, but no central scotoma and no color blindness.

The mother, Mrs. D., was then examined. Her vision was 20/70, with correction 20/40. Ophthalmoscopic examination showed some pallor of the discs, with small arteries and veins. Color vision intact, no central scotoma, but there was light dimi-

nution of the peripheral fields. Four daughters were not affected and had normal vision. No other members of the mother's or father's families were affected. As the medical profession is apparently just beginning to realize the far-reaching importance of heredity, it seems worth while to present this additional example of Leber's disease.

THE PREVENTION OF BLINDNESS.

H. Park Lewis (*N. Y. Med. Jr.*, April 30, 1910) summarizes the objects aimed at, which are practicable and attainable, as follows:

1. Organized and concerted effort on the part of the doctors, the sanitarians and the public.
2. Education through publicity, better training of midwives, nurses and others by means of public addresses, etc.
3. General and uniform midwife laws.
4. Free distribution of a prophylactic, with advice as to its necessity.
5. Insertion on every birth certificate of the question as to whether a prophylactic has been employed, and if not, why?
6. Earlier notification of births.
7. Compulsory reporting of ophthalmia neonatorum, with a penalty affixed for its neglect.
8. Arrangement with hospitals for reception of mother and child when ophthalmia neonatorum develops.
9. Provision when cases are reported, whereby the board of health is given authority to take such immediate action as may be necessary to prevent blindness.

He concludes thus:

When these effective and practical measures shall have been taken, as we hope they may, in the not distant future, we shall have the gratification of knowing ophthalmia neonatorum to be a governed pestilence, and blindness from this cause should be so infrequent and disasters so rare, that we shall have practically wiped out one of the most prolific causes of blindness from our land.

ON THE REAL POSITION OF THE PROWAZEK BODIES.*

By Dr. Bruno Heymann,
BRESLAU, GERMANY.

Translated by A. Alt, M.D.

On September 1st last year, at the meeting of the International Medical Congress at Budapest, I reported that the bodies found by Prowazek and Halberstaedter in the epithelial cells of trachomatous conjunctivæ and looked upon as the excitants of trachoma, could also be found in gonorrhœic blennorrhœa neonatorum. This fact was something surprisingly new. Among the numerous investigators who had before me studied Prowazek's findings, Stargardt only, and he in one case only, had found the Prowazek bodies in a not trachomatous eye affection. This was a case of blennorrhœa neonatorum without gonococci and not certain as to its ætiology, which, however, was not studied any further and had been forgotten.

In contrast to the referents of the Congress on the ætiolgy of trachoma (Greef, Herzog and Gallenga) I had to state it as my judgment that it was not permissible to declare Prowazek's bodies as specific for trachoma, as long as we could not prove that the bodies found in trachoma were different from those found in blennorrhœa, and that (subject to further studies) they would be of diagnostic value only, if every suspicion of gonorrhœa were excluded. I, furthermore, declared Prowazek to be too hasty in looking upon these finest granules enclosed in the cells as independent living beings (chlamydozoa) or even as the causes of disease. In order to clear up the question it would be especially necessary to hunt for Prowazek's bodies in other gonorrhœic affections.

Such researches which I had begun before this lecture were soon made also by Prowazek and Halberstaedter. According to their report on chlamydozoa in not gonorrhoic blennorhœa neonatorum, they examined epithelial smears from the anterior urethra, of 35 recent and 20 older male gonorrhoics, and from 10 recent and 15 cured female gonorrhoics from the cervix and urethra, but in no case could they find cell inclosures. The same negative results were obtained in 5 recent and 3 older cases of blennorrhœa

*Two lectures held on January 19th and February 24th, 1910. Berlin Klin. Wochenschrift, April 11th, 1910.

neonatorum. But, in 5 newly born with the clinical diagnosis of ophthalmo-blennorrhœa in which, however, no gonococci were found, they found numerous epithelial cell inclosures, which at the time it was impossible to differentiate from those found in trachoma. In spite of this, these blennorrhœa bodies, as Prowazek calls them now in opposition to my advice, are to be looked upon as biologically different, but also specific and causative organisms for some forms of blennorrhœa without gonococci. Prowazek and Halberstaedter end their communication thus: "There is a certain group of cases of not gonorrhoic blennorrhœa of the newly born in which chlamidozoa are found, and which we consider as an epitheliosis, like trachoma."

Soon after Schmeicher reported on a not gonorrhoic case of blennorrhœa neonatorum with chlamidozoa, as also, Lindner on a series of 31 cases of blennorrhœa neonatorum. Three cases of these were excluded, being negative and too old. Of the other 28 gonococci were found in 13, none in 15. Of the 13 one only, of the 15 every one showed Prowazek bodies, that is, among 28 cases of recent blennorrhœa neonatorum there were 12 pure gonoblennorrhœæ, 15 "inclusion blennorrhœæ," as Lindner calls them, and one mixed blennorrhœa. Finally Addario and Zur Nedden have reported interesting findings of Prowazek bodies in eyes without trachoma. Addario found them in 2 cases of blennorrhœa neonatorum (with gonococci ?), in 3 cases of diplococcus conjunctivitis and in 2 cases of acute catarrhal conjunctivitis without bacterial findings, and finally even in normal conjunctivæ; Zur Nedden in a case of conjunctivitis of 10 days' duration characterized by great papillary swelling in an adult and in a streptococcus infection in a 2 year old child.*

I, too, have since striven to get a better insight as to the diseases in which Prowazek's bodies can be found. Referring the reader to my extensive communication which will presently appear in the *Klin. Monatsbl. f. Augenh.*, I want to state here that I have examined the normal and diseased conjunctivæ of 235 human beings, and 25 animals (pavians, rabbits, guinea pigs, mice) and found Prowazek's bodies only in trachomatous eyes or eyes that were clinically suspect of trachoma, in blennorrhœa neonatorum and in a conjunctivitis of a puerpera which was not suspect of trachoma.

*After finishing the manuscript, a paper by Wolfrum, just published, who found 4 times Prowazek bodies in 8 non-gonococcic cases of blennorrhœa neonatorum and never in 20 gonococcic cases, and who apparently produced in 2 adults "real" trachoma by means of the inclosure secretion, could here be taken into consideration as to its most important conclusions only.

Of 53 trachomatous or trachoma suspect cases, 15 were quite recent and had not yet been treated, or but slightly so. Of these 10 showed Prowazek bodies. Of the other cases 15 were recent relapses, 23 old cases; of the former 3 cases, of the latter none showed cell inclosures.

Of 43 cases of blennorrhœa neonatorum 14 were purly gonococcic, 10 inclosure conjunctivitis cases without gonococci (or other micro-organisms), 12 mixed blennorrhœa. Prowazek and Halberstaedter doubt the existence of such mixed forms. This is probably due to the small number of cases of blennorrhœa which they have examined. On the other hand, it seems to me, too, as if there were a certain antagonism between the virulence of the gonococcic infection and the number of Prowazek bodies. Yet, I have seen some cases in which very numerous gonococci (of which pure cultures were obtained) could be seen in the same field, even in the same cell with the Prowazek bodies, a condition which according to our experience is of an especially bad prognosis. But, even if gonococci cannot be found it behooves us to hesitate in making a negative statement since we know how difficult it is in many cases to find them, especially when treatment had been instituted. I have had among my bacterially negative cases in children a number whose mothers suffered from a severe genital gonorrhœa and in which an infection with the same virus was certainly probable. Among my gonococcus free cases, on the other hand, there were quite a number in whom not the least anamnestic point existed for a gonococcic infection, in which repeated microscopical examinations and cultures gave only negative results, and which yet showed Prowazek bodies in extraordinary numbers. In the puerpera spoken of above, who soon after confinement was affected by a severe conjunctivitis with much secretion, but not suspect of trachoma, with Prowazek bodies, there was no symptom of a recent or relapsing gonorrhœa. From these experiences I came nearer to Prowazek's and Halberstaedter's ideas at least in so far that I, too, assumed with great probability that the Prowazek bodies found in the newly born and in one puerpera—notwithstanding their occasional association with gonococci, were bodies independent of the gonorrhoic virus.

But with probability only! For the examination of urogenital gonorrhœa, contrary to Prowazek and Halberstaedter, did not afford me any support of this opinion. While these authors never could find gonococci and cell inclosures at the same time in the eyes or genitals and saw in this fact an important point in

their proof, I found in 15 cases of gonorrhœa in men and women twice Prowazek bodies besides numerous gonoccocci, in a man in the urethral epithelia and in a woman especially in the scraped off cervix epithelia. In specimens from healthy men and normal, pregnant and post-puerperal not gonorrhoically affected women, whose examination was kindly permitted by Professor Kuestner, director of the female clinic, I could never find any Prowazek bodies. Their nature was therefore not cleared up by these examinations. Yet, these two positive cases aroused my special interest in another direction. They were the parents of a newly born pair of twins, each of whom suffered from a severe blennorrhœa, showing gonococci and Prowazek bodies. Prowazek and Halberstaedter have previously mentioned that "in 2 cases they had occasion to examine microscopically the genitals of the mothers of newly born with not a gonorrhoic conjunctivitis and had found undoubted cell inclosures in the epithelia from the mouth of the urethra." They report "this single fact" without commendation and promise further studies. I thought this a very important fact and thus my positive findings in the parents of the two children with Prowazek bodies shed at once a brilliant light upon the source of the cell inclosures observed in the children and pointed toward the same manner of infection as in gonorrhœa. Our interest in the Prowazek bodies is thus enlarged way beyond the conjunctiva and comprises all disease processes analagous to gonorrhœal affections, especially those where gonococci cannot be found, and demands ever more urgently an answer to the question whether the Prowazek bodies are only accompanying the gonorrhœa or whether they are the signs or even the incitors of another disease.

The solution could be expected from experiments on animals. This hope was based on, first, that, aside from Heller's hitherto unproven positive results in young rabbits, never in animals a pathogenic effect of live gonoccocci had ever been seen, and second, on the assumption that, if there was another virus present in the secretions together with Prowazek bodies, this would certainly resemble the virus of trachoma, and, like the latter, would produce results at least in apes. Therefore, at first apes only were experimented with. . . . .

. . . The immunity of the animals against gonococci seemed to me to be of such importance for my studies that at first I inoculated the conjunctivæ of some apes with dead or living pure cultures of gonococci (first generation) and with fresh eye secretions rich in gonococci by rubbing them in or after having made

small scarifications. The result was the same as before. Aside from an injection and a small amount of secretion, I, too, saw no symptoms of blenorrhœa, no distinct increase in gonococci, never Prowazek bodies. It was, therefore, the more surprising, that when many weeks later I inoculated with slight scarifications the eyes of one of these apes which had in vain been treated with gonorrhœa, with the gonococcus free secretion with Prowazek bodies from a blennorrhoic newly born, 7 days later a purulent discharge, considerable redness and swelling of the lids and numerous Prowazek bodies resulted. On the 14th day after the inoculation Professor Uhthoff was kind enough to examine the ape and declared it to be a "severe follicular conjunctivitis." Another ape inoculated with the secretion from the conjunctiva of the first one in the right eye showed the same macroscopical and microscopical reaction. This animal had also been inoculated in the vagina and urethra. While in numerous slides before the inoculation no Prowazek bodies could be found, on the 11th day after it typical bodies were found in smears from the vagina. Clinically no symptoms were noticeable on the genitals. In a third ape inoculated from the second one in the conjunctiva and genitals a conjunctivitis with profuse secretion appeared on the fifth day; Prowazek bodies were very numerous in this secretion.

Aside from this secretion I have used 3 others with gonococci and cell inclosures from newly born children and the gonococcus free secretion from the puerpera for inoculation in apes and obtained positive results in every instance. Together with the appearance of numerous Prowazek bodies there was always a distinct effect of the inoculation. This differed in different animals as to intensity and demanded a frequent comparison with normal eyes. It must be stated here that the normal eye of the ape has a large quantity of subconjunctival fat tissue which when the lid is turned not rarely springs forth as a big elevation, which, in turn, may produce a greater injection of the bloodvessels, and that follicle like formations are found in the normal eye; these three points may easily deceive and give the erroneous impression of a pathological condition in an eye which has been inoculated. This difficulty can be avoided when by careful clinical observation in the first ten days after inoculation the characteristic but short initial stage is not overlooked. After an incubation without prodromal symptoms of 3 to 5 days in pavians, of 7 to 10 in the other apes, it appears sometimes quite acutely in the form of considerable purulent secretion, great redness and swelling

especially of the retrotarsal folds (dullness and lack of appetite), and not infrequently, especially in pavians, forms a picture not unlike a blennorrhœa. But in 1 to 3 days this disappears and changes to a condition resembling a follicular conjunctivitis. This condition can almost always be well distinguished from human trachoma. Rarely trachoma-like conditions develop. A picture which according to Professor Uhthoff's judgment comes very near to human trachoma was thus far seen in one case only after an observation of two months duration. In order to clearly distinguish the conjunctivitis of apes the histological examination of excised portions of normal and inoculated conjunctivæ is necessary. Dr. Hegner has kindly done this and is going to report his results in the *Klin. Monatsbl. f. Augenhl.*

The genital secretions with Prowazek bodies taken from the two parents when inoculated in apes produced the same conditions as the conjunctival secretions from the newly born. Besides these I inoculated also a urethral secretion and two vaginal secretions from parents which showed only gonococci and no Prowazek bodies, but whose children had cell inclosures in their conjunctivæ and always obtained positive results. The same occurred with the vaginal secretion of the repeatedly mentioned puerpera who had no Prowazek bodies in her vaginal secretion. The clinical effect of the inoculation was always accompanied by Prowazek bodies.

As previously in a female ape inoculated with eye secretion, I found in another inoculated with urethral secretion cell inclusions in the vagina.

I can therefore affirm that the inoculations were positive with one eye secretion, one vaginal secretion, and recently with one urethral secretion from a man, which Lindner has reported in a preliminary communication, but I should like to insist that he seems to go too far when he considers these affections in the ape as being the same as pure trachoma.

From the foregoing we may state—

1. Aside from trachoma Prowazek bodies were found, also, in not trachomatous conjunctivitis of the newly born and of one puerpera, sometimes together with gonococci.

2. Prowazek bodies, together with gonococci were present, also, in the genitals of the parents of such newly born children with conjunctivitis.

3. Secretion with Prowazek bodies whether taken from the not trachomatous conjunctiva of the children and the puerpera, or from the genitals of the parents, produced in pavians and

other apes first a blennorrhœa-like and then an affection similar to follicular catarrh which in further inoculation from ape to ape was followed by the same symptoms.

4. Very numerous Prowazek bodies were found in the conjunctival epithelia of apes with such experimental conjunctivitis.

5. Genital secretions in which *no* Prowazek bodies could be found, which, however, anamnestically were brought into relations to a conjunctivitis with cell inclosures, produced clinically as well as microscopically the same inoculation effects as did the secretions with cell inclosures.

6. Prowazek bodies were, also, found in the vaginal epithelia of 2 female apes whose genitals were inoculated, the one with eye secretion containing cell inclosures, the other with vaginal secretion without cell inclosures.

What conclusions may we draw from these observations?

It appears to me as the most important result that we recognize that the Prowazek bodies which were found in not trachomatous conjunctivitis and genital secretions, in spite of simultaneous presence of gonococci, cannot be products of reaction of the gonorrhoic affection, but prove the presence of another, hitherto unkown, virus which can be transferred to and grown further in apes. It seems that the conjunctiva of the newly born is especially sensitive to this new virus. Whether it, also, affects the eyes or the urogenital apparatus (or other organs) in adults, has to be found by further observation. Herewith a number of problems are opened up in numerous special fields; thus for instance the severe puerperal conjunctivitis without gonococci which Kruckmann has recently described and explained as the distant effect of a recrudescence of a genital gonorrhœa, should be examined for Prowazek bodies and its pathogenesis be tried on animals; in the same way the mooted congenital suppurations of the lacrimal sac of the newly born, rhinitis in the new born, the granular processes in the cavum narium or naso-pharynx which Kuhnt looks upon as trachoma, several gynascological affection like colpitis granulosa, several refractionary affections of the urogenital apparatus. The solution of these questions would lead to important practical conclusions. Thus it is not improbable that the few failures which still are reported with Crédé's treatment may be due to this new virus, which may perhaps be more able than the gonococcus to withstand the usual remedies. I am inclined to such an explanation by the above mentioned crédéized newly born children in whom Prowazek bodies were found, but no gonococci, although their mother suffered from severe genital

gonorrhœa, and furthermore by the observation made in cases with cell inclosures and gonococci, that with the antigonorrhoic treatment the gonococci disappeared, but the Prowazek bodies and the pathogenic influence on apes were retained for months, although no more symptoms were visible in the eyes. . . .

. . . . What position the Prowazek bodies hold in the inclosure affections, whether they play a causative or a synergetic role, or whether on the contrary they are only the result of a pathological cell function due to an unknown virus, can at present not be decided. Prowazek and Halberstaedter consider these bodies as disease incitors, but they have to this time not even proven their ability to live independently. When Prowazek tries to weaken my objections by pointing out that the morphology is not to be trusted too far, I perfectly agree with him. What is lacking in my opinion are physiological data which would characterize these bodies undoubtedly as living beings, Zoa, and it is hard to comprehend that Prowazek and Halberstaedter declare the bodies found in trachoma and in the not gonorrhoic blennorrhœæ of the newly born, which cannot morphologically be differentiated nor biologically defined, to be two different incitors of specific "epithelioses." The difference in the clinical picture evidently led them to assume this dualistic standpoint. How doubtful, however, such reasoning is, is plain by the fact that directly contrary opinions are already enunciated from different sides. Since Arlt the Vienna School has in spite of all attacks adhered to the close relationship between trachoma and blennorrhœa. This teaching has recently found an ardent champion in Lindner. He identifies the bodies found in trachoma and blennorrhœa, which he, too, considers as incitors, and he looks upon the inclosure blennorrhœa of the newly born simply as an "acute trachoma of the newly born"; in logical sequence he, also, speaks of a "trachoma of the genitalia". He sees the proof for this assumption, aside from the Prowazek bodies and certain bodies looked upon as their initial stage, in the production of true trachoma when inoculating the secretion from the eyes, urethra or vagina in apes. The same standpoint was already taken by a pupil of Sattler's, Wolfrum in Leipzig, especially on account of the two positive inoculations in man, above mentioned, with inclosure conjunctivitis secretion from the newly born. We will have to study further whether trachoma and the inclosure conjunctivitis are really ætiologically identical diseases and have a connection with the urogenital apparatus. At present, the following considerations seem to me to speak against this.

First, the different effect of inoculation with trachomatous material. Reports on experiments on apes with trachoma virus have been numerous, yet the results were varying strangely. Even in positive animals the time of incubation varies between a few days and some months. Prowazek and Halberstaedter saw none in the lower apes, in Orang-Utans certain clinical symptoms as redness, swelling, etc., but nothing like human trachoma. I have thus far had but little experience in this direction. I have inoculated two apes, each with the secretion from true trachoma. The one was a very severe case, had been under treatment for some time, but was still florid and in one eye a rapid pannus formation was taking place. Prowazek bodies having been found in large numbers for weeks, they were not found on the very day of inoculation and have not been seen since. The other was a recent untreated trachoma in which I found no Prowazek bodies. I used it for inoculation because such cases are rare with us and I thought them particularly favorable for transmission. The inoculated pavian showed a little characteristic swelling of the conjunctiva after 8 days, which gradually grew worse with considerable secretion. At that time Prowazek bodies were found. During the next 2 weeks these symptoms disappeared and left the picture of a simple conjunctivitis. Of course, I shall try to gain a judgment of my own by further experiments. Yet, after the other experiences it seems to me that with infections with trachomatous material the certainty of success and the uniformity in the clinical course, which we have when inoculating the virus of the non-trachomatous inclosure secretion, are wanting. It is, in my opinion, at this date more probable that we have two distinct kinds of virus, therefore two distinct diseases, unless as a new hypothesis, the loss of activity of the trachoma virus by unknown forces, may be held against it.

In the second place, epidemiological considerations speak, also, for a difference. If we look upon trachoma and inclusion conjunctivitis as ætiologically identical, it is hard to understand why here in Breslau, according to Professor Wolffberg only 21 cases of trachoma have been registered per year since the law demands such registration, although the affections of the newly born are frequent and adults in great numbers undoubtedly have the virus in their urogenital apparatus.

Another question is whether trachoma can also affect the urogenital apparatus and spread from there. This highly important question might be easily solved. If the trachoma virus could

so easily attack the urogenital apparatus, it would have to be found in these organs in patients with ocular trachoma. My own researches in this direction have been without results. They concerned, however, only a few older cases. Yet in greatly infected countries like Russia, Hungary or Italy with a careful selection of cases a large number of individuals with trachoma of the genitals should be found.

As stated above, I can at this date neither agree with the dualistic standpoint of Prowazek and Halberstaedter, nor with the theory of identity of Lindner and Wolfrum. However, aside from these, a third opinion is possible. When we see how inconstant is the appearance of Prowazek bodies even in doubtless cases of trachoma and how uncertain is the result of inoculation, while with secretions containing Prowazek bodies it never fails, it seems logical to think that those cases of trachoma which show Prowazek bodies and give positive inoculation results, are not in reality cases of pure trachoma, but mixed infections with the virus of the non-trachomatous inclosure affections, just as the inclosure conjunctivitis may accompany gonorrhœa, and this not rarely trachoma. There would then be only one kind of Prowazek bodies, they, however, would be specific for the not trachomatous inclosure affections and would in reality have nothing to do with trachoma. This unity theory must be proven by experiments in animals. If numerous, clinically certain, but Prowazek body free, recent trachoma cases should give no positive effect, this would argue in favor of the latter contention.

Which one of the three theories is correct further observations will teach. What we thus far have gained from the researches is considerable more clearness. Our future interest will have to consider not so much what the Prowazek bodies are, as what is the virus in these affections, its sources and mode of spreading, and what are its biological attributes. I therefore add here the main questions once more:

1. Are the virus of trachoma and the virus of not trachomatous inclosure secretions from the eyes and genitals identical?

2. Is, in case of the identity of these two poisons, the common virus or, in case of difference, each or only one of them capable of spreading from the urogenital apparatus and also pathogenous for it?

3. Can inclosure free trachoma virus by transmitted to apes?

These questions may be worked at independently of what the character of the Prowazek bodies really is. This seems to be

evidently a very difficult problem and may perhaps remain dark for a long time to come. The study of the above mentioned question seems to me to be more hopeful and more urgent. Let us hope that these questions will be taken up by many and that with the help of extensive clinical observations, epidemiological data and experimental examinations they will soon be brought to a solution.

MEDICAL SOCIETIES.

OPHTHALMIC SECTION
St. Louis Medical Society.

Meeting of April 6th, 1910.

Dr. F. L. Henderson, presiding.

Epithelioma of Eye—Presentation of Patient.—By Dr. R. F. Miller.

This patient came to me last Friday morning. He was born in Germany and has lived in this country 26 years and most of the time has been in railroad work. More than three years ago, during a freeze, he was working with a pick when some water and sand struck him in the eye. Within ten days thereafter he had some inflammation in the eye. He was treated by a traveling physician and following that this inflammation would recur with intermissions. Then he went to a traveling oculist who is supposed to have taken some sand out. Then this growth commenced. Later he went to Springfield, Missouri, and the railway oculist there wanted to remove the eye, but he would not consent and the doctor removed the tumor from the conjunctiva. Then the patient went home. He says that seven months ago the tumor was larger than it now is. The epithelioma on the temporal region came very soon after the inflammation of the eye. This epithelioma has also been taken off once. The pathologist of the Frisco Hospital examined a portion of the growth from the eye and states that it is "a carcinoma of the squamous type"—an epithelioma. I expect to-morrow to enucleate the eye and to remove the epithelioma from the temporal region. The question comes up as to what after treatment should be em-

ployed; whether it should be cauterized or treated with the X-ray. The man is in perfect health otherwise and has gained flesh this winter. He states that a year ago last July the tumor was as large as it is to-day. It has been suggested that the patient have the X-ray treatment before removal, but he has a wife and four children and feels that if he stays up here very long that they will soon be without bread and meat, so any long continued treatment is impossible.

DISCUSSION.

Dr. Clarence Loeb had seen two cases of epithelioma of the eye-ball, but this was the largest he had ever seen and he did not believe that any operation would avail except a complete exenteration of the orbit. The reddening of the lid made him think there might be some cancerous tissue in the lid itself, and, therefore, after the operation he thought the patient should be subjected to the X-ray in order to destroy completely any cancer cells that might be left over.

Dr. Meyer Wiener had seen a similar case at the Washington University clinic last spring. After removal of the entire orbital contents there had been no return, and the skin had grown up into the orbit. It seemed to him that would be the only safe way to deal with such a case, for these cases of carcinoma of the orbit were very treacherous. He had recently had a case of epithelioma of the lower lid, a photograph of which he presented to the Section.

Dr. Henderson believed that the safest thing was to take out everything but the skin of the lids, dissecting right down to the bone. He thought that the X-ray treatment afterward would be advisable.

Total Double Ophthalmoplegia, Associated with Simple Glaucoma.—Dr. J. Ellis Jennings.

I desire to report this case of total double ophthalmoplegia on account of its rarity and because it is complicated by simple chronic glaucoma and total blindness.

Mr. T. O., aged 75, consulted me February 8, 1910. The patient is a retired farmer, who raised a large family of healthy children, and has enjoyed good health until his eyes became affected ten years ago. The first symptom noticed was ptosis of the left upper lid followed later by ptosis of the right lid, and then a gradual loss of power of all ocular muscles. Two or three

years ago vision began to fail until sight was lost in both eyes.

Examination.—There is complete double ptosis. When the lids are elevated by the fingers, the eye-balls are seen to be absolutely fixed, staring directly forward, and cannot be moved a particle in any direction. The cornea of the right eye is hazy, the anterior chamber shallow, and the pupil a large oval. The lens seems clear, but a view of the fundus cannot be obtained owing to the hazy media. T+1½ or 2. The condition of the left eye is the same plus a complete opacity of the lens. T+1½ or 2.

Vision.—There is no light perception in either eye. I made the diagnosis of simple chronic glacoma, as after careful questioning I could obtain no history of inflammation or pain in the eyes at any time.

Examination of the urine negative. There is no evidence of syphilis except one of the symptoms of tabes, i.e., an absence of knee jerks.

Total ophthalmoplegia, or paralysis of all the orbital muscles supplied by the 3d, 4th and 6th nerves may be acute or chronic. In acute cases the paralysis comes on rapidly and is frequently accompanied by fever and convulsions and may prove fatal. The cases given, according to de Schweinitz, are hæmorrhage in the region of the nuclei or as an acute hæmorrhagic encephalitis, the primary cause being syphilis, tuberculosis, ptomaine—toxemia or poisoning from alcohol or sulphuric acid.

In the chronic form one or more muscles may be affected at first and gradually increase until every muscle is paralyzed. The causes given are syphilis and tuberculosis resulting in hæmorrhage or degeneration of the nuclei or nerve trunks.

DISCUSSION.

Dr. F. L. Henderson wished to know whether Dr. Jennings considered the ophthalmoplegia and simple glaucoma coincidental or in any way dependent upon each other. He thought it would be interesting to know if there was any association between the ophthalmoplegia and the glaucoma.

Dr. Jennings said he thought it was merely coincident.

Dr. Wiener said that through the courtesy of Dr. Jennings he and Dr. Wolfner had seen this case, and it certainly was very puzzling. The patient had been questioned very closely, but it was hard to get a definite history as to which condition had appeared first; but the fact remained that there was an increase in tension in both eyes.

Dr. Jennings said that we do not know the cause of simple glaucoma and the combination as in this case was so rare that it would be impossible to make any deductions. In fact, we do not know certainly what was the cause of the ophthalmoplegia, or what the lesion had been. The man was in robust health and there was no evidence of any mental or physical disease, muscular or progressive paralysis. In fact, he was a perfectly healthy, normal individual, except that he was absolutely blind. He had a number of healthy children, and had never been sick until this condition appeared at sixty-five years of age. He regretted that this man had disappeared from observation before he had an opportunity to study the case as he would have liked to do.

A Modification of the Scissors Operation on the Lower Punctum.—By Dr. J. W. Charles.

The principal points of the paper were that the old knife operation of slitting the canaliculus into the lacrimal sac was unsatisfactory because it not only destroyed the pumping power of the canaliculus, but when the conjunctiva was swollen as in beginning ectropion the incision could not be so accurately placed as to ensure its lying toward the globe after the swelling had subsided and it therefore often lay in the skin, and became a dust-catcher.

Some years ago, Dr. John Green began to use his scissors operation. This was made by inserting one blade of the scissors into the canaliculus and then turning the other blade outward until it lay upon the conjunctiva temporally to the former. The resulting incision was vertical to the lid-margin. Because this shrinking required some time and the flap acted as a valve, in many instances, and prevented immediate relief of the stillicidium I have for some time made a rather larger flap than that of Dr. Green by pressing the conjunctiva upward into the bite of the scissors and extending the incision backward toward the cul-de-sac. This leaves a rather angular incision and the principal addition to Dr. Green's operation lies in the fact that the flap is then cut off by a vertical snip of the scissors, leaving a triangular depression which acts as an artificial lacus lacrimalis in the palpebral conjunctiva almost immediately after the operation. The wound is of course kept open by stretching with a probe until the depression is covered with epithelium. The advantages are the almost immediate relief, the retaining of normal pumping power, the final retention of as nearly normal relations as possi-

ble since the new punctum remains in contact with the globe and its greater applicability in cases of beginning ectropion.

The method differs entirely from the discarded Critchett operation which consisted in slitting the canaliculus into the sac and removing a large triangular flap with this incision as a base. It resulted in deformity.

DISCUSSION.

Dr. F. L. Henderson had seen two cases operated upon by Dr. Charles, and both seemed very successful. He believed that in one case Dr. Charles did a straight scissors operation on one eye, had taken out a little triangular piece in the other eye. The snipping out of a small piece of the mucous membrane left a very satisfactory opening. He understood Dr. Charles' position to be that he thought in the majority of cases it gave a more immediate, tangible result than the straight scissors operation.

Dr. Meyer Wiener asked Dr. Charles if he noticed a marked difference in the carrying away of the tears after this operation. It had always seemed to him that it depended not so much upon the size of the opening as upon the two puncta coming together. He had seen cases where the lower punctum was slit and it was a perfectly good canal, and yet there was an overflow of tears on the cheek. If there was not a marked difference in the tears in this case it would overthrow his theory.

Dr. Charles said that he had noticed an immediate difference in the carrying off of the tears. This was especially true in beginning ectropion. Almost all of those cases responded instantly when the punctum was extended backward toward the fornix. He thought it was just in those cases that this modified operation had its best effect, where the punctum had been turned out so far that the tears could not flow away. The patient almost invariably returned the next day with the statement that there were no more tears.

Dr. Wiener asked if the upper punctum came directly over the lower opening.

Dr. Charles said that he had not noticed that point at all, but he did know that with the ordinary slit he had seen many cases that were not remedied. With this operation, however, by pushing back the punctum toward the cul-de-sac, the tears had subsided. He had not noticed whether the upper and lower puncta came in contact, but would keep Dr. Wiener's observation in mind in his next cases.

ABSTRACTS FROM MEDICAL LITERATURE

By J. F. Shoemaker, M.D.,

St. Louis, Mo.

HÆMORRHAGIC CENTRAL CHORIORETINITIS IN NON-MYOPIC EYES:

A CLINICAL CONTRIBUTION.

Charles J. Kipp (*Trans. Am. Oph. Soc.*, 1909) quotes from the writings of Loring, Th. Leber, and C. Schweiger concerning this disease of the eyes and gives his own personal observations. He has seen the disease in both sexes and has been unable to assign any dyscrasia or systemic condition as the cause of it. In one case the same condition developed in the other eye three years after the first one became affected, but in all the other cases it was limited to the one eye so far as he knew. He says: "The symptom which brought the patients to me has always been a more or less sudden impairment of vision; usually the patient describes it as a cloud before the eye, or a distortion of the objects looked at.

"The external parts of the eye showed no signs of disease. The media were in most cases perfectly clear; in a few cases a few floating opacities in the vitreous were present; and in one case there was, as the result of a previous iridocyclitis, great cloudiness of the vitreous with large floating flakes in it. In not one of the cases have I seen a deposit of precipitates on Descemet's membrane. The optic papilla was in all cases clearly defined and of natural color, and the retinal blood-vessels were normal in caliber. The retina was transparent everywhere except at the macula lutea, where small, thin extravasations of blood of light color were present. The extravasations seemed to be in the inner layers of the retina. There were more than the usual number of small blood-vessels seen in this region. The choroid in the macular region was of a dark grayish or blackish color, while in other parts it was of the normal red color. . . . Sometimes the discoloration was in the shape of a disc; at other times

it appeared as a ring with a reddish area in the center of it. The discolored area was usually of about one-half of the disc's diameter in size.

"Subsequently the following changes were observed. The retinal extravasations were slowly absorbed without undergoing changes in color; they were in no instance changed into white plaques. Other extravasations sometimes appeared in the same area during the following months. The dark area under the retina remained unchanged and underwent but little change in color for many weeks, and even months, and then it was gradually converted into a grayish-white patch, which later on became much larger. The grayish patch was seldom of the same color throughout; in some parts it was of a lighter color than in others, and, moreover, it seemed somewhat uneven on its surface. Gradually some pigment spots developed on it, more especially near its margins. Retinal vessels were seen on it, some of which were much larger than those seen in this region in the normal condition. Choroidal vessels were never seen in the grayish region. The picture was not that of a patch of atrophy of the choroid, but rather that of a new tissue formation in or under the retina."

The vision, which was greatly impaired in all of the patients when first seen by the author, improved in only one case while under treatment. The defect was found to be due to a central or paracentral scotoma.

From his study of his cases in the early stages Kipp believes the disease is primarily one of the choroid. Aside from the slight extravasation of blood the retina seemed to be practically transparent at first, as the hæmorrhage in the choroid could be distinctly seen. Later the retina became opaque, however, hiding the choroid, although the inner layers were transparent as the retinal vessels could be seen. While the primary trouble is with the choroid he believes there must be an early extension of the trouble to the outer layers of the retina, as the slight extravasations of blood that were present in his cases would not have so markedly impaired the vision.

PRESENILE SYPHILITIC CATARACT.

Edward Stieren (*Penn. Med. Jr.*, March, 1910) believes that less mention is made of syphilitic disease of the crystalline lens than of any other tissue in the human body, the great majority of authors entirely ignoring syphilis as an ætiological factor in

the causation of early cataract, while the few who do mention it are rather vague in their reference to it. He reports three cases, one in which cataract developed secondary to a syphilitic inflammation of the anterior segment of the eye and the other two in which cloudiness of the lens substance occurred, with well marked peripheral cortical striæ, in eyes with pronounced arteriosclerosis in the retinal vessels. As these two cases were both under forty years of age and the one gave a clear history of syphilis while the other had other symptoms pointing toward a syphilitic infection, the author feels justified in attributing the arteriosclerosis to a syphilitic endarteritis. Antisyphilitic treatment, in one case, cleared up the cloudiness of the lens and improved the vision, although the cortical striæ remained. This trouble did not progress any, however. The author uses, in these cases, a combination of tincture of iodin and spirits of nitrous æther as follows: Tincture iodi m.xv., spiritus ætheris nitrosi ℥i. Thirty drops to be taken three or four times daily.

UNUSUAL RETINAL LESIONS IN ASSOCIATION WITH INCIPIENT PULMONARY TUBERCULOSIS.

G. E. de Schweinitz and T. B. Holloway (*University of Pa. Med. Bulletin,* March, 1910) report two cases in which there were unusual lesions of the retina in persons who had incipient tuberculosis. The first patient gave evidence from clinical signs of incipient tuberculous lesions at the apex of the right lung, that the diminished blood pressure was probably in association with this condition of affairs, and that although no tubercle bacilli were discovered in the sputum, for, indeed, there was no expectoration, von Pirquet's test was actively positive. In the central region of the retina of the right eye, there was a large whitish exudate which almost surrounded the macular area. Down and out from the disk in the mid-zone of the fundus there was an irregular exudation of similar color and caliber. Far out in the temporal periphery there was a large irregular lesion having a slightly yellowish tinge in some places, and scattered through it were a number of fine hemorrhages and small vascular dilatations, but it was not possible with any degree of accuracy to determine whether or not these were associated with arterial or venous twigs. One large dilatation was spherical in form and was connected with a venous branch, while near it there were three similar but smaller spherical dilatations, lighter in color and almost certainly attached to small arteries. Close by these

lesions there was a wide spherical patch, from which projected a whitish spur. Scattered along the course of the upper temporal vein there were numerous small hæmorrhages.

It was difficult to study the peripheral lesions on account of their anterior situation, and because of the patient's inability to maintain extreme outward rotation. In no place in the retina, however, was it possible to demonstrate with certainty an arteriovenous communication. The left eye was perfectly normal, except that there was a slight tortuosity of the retinal vessels.

The physical examinations of the second patient indicated incipient tuberculosis of the right apex; the von Pirquet test was positive; there was some intestinal autointoxication, and a diminished systolic blood pressure. Above the macular region and lying beneath the retinal vessels of the right eye was a crescentic patch of white exudation. A branch of the superior temporal vein crossed the circinate lesion, and from a point which corresponded to the center of the concavity gave off a branch which descended perpendicularly. On this branch near its origin there was a spheroidal dilatation of the vein, and just below, after the vein had passed beneath a horizontal temporal artery, there was an atrophic area of about the same size, into which protruded a sac-like dilatation of the wall of this vein. Near this atrophic area were a number of small hæmorragic spots. On the branches of the lower temporal artery which proceed toward the macula a number of aneurismal dilatations, associated with near-by punctate hæmorrhages, were visible.

Similar dilatations were noticeable on a vertically descending artery, while the inferior temporal vein, some distance from the disk, also showed irregularities in caliber. The macular region was granular, and the seat of a fine discreet pigmentation, while the vascular terminals about this region were unduly prominent, tortuous, and markedly irregular in their caliber. The peripheral field was normal; in its center there was a scotoma. The left eye was normal in all repects.—*Jr. A. M. A.*